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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,121	02/09/2005	Naohiro Tomita	Aikawa Case 37	2845
23474	7590	10/16/2006	EXAMINER	
FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631			JENKINS, JERMAINE L	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/524,121

Applicant(s)

TOMITA ET AL.

Examiner

Jermaine Jenkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 6-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 & 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Tai et al (6,782,755).

In regards to claim 1, Tai et al teaches a pressure sensor having a piezoelectric element (102, 104, i.e. piezoresistors) in the form of a thin film (106, i.e. diaphragm) and using a material which comprises a nitride (i.e. silicon nitride layer) being formed on a base material (300, i.e. wafer) of an insulating material (Column 2, lines 29-37 & Column 3, lines 33-40) and means (i.e. Wheatstone Bridge) which transmit a signal from the piezoelectric element (102, 104) are passed through the base material (See Figures 1 & 6).

With respect to claim 3, Tai et al teaches the nitride comprises a thin film of aluminum nitride having a C-axis orientation (Column 5, lines 57-60).

Claim Rejections - 35 USC § 103

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tai et al (6,782,755) in view of De Rossi et al (4,456,013).

With respect to claim 2, Tai et al teaches the claimed invention except for having a pair of output electrodes acting as the signal transmitting means being mounted on a side of the piezoelectric element which is disposed toward the base material. De Rossi et al teaches a pressure measuring device utilizing a pair of electrodes (84, 86) as a signal transmitting means mounted on the piezoelectric element (being read as a piezoelectric membrane) (Column 1, lines 17-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a pair of electrodes to transmit signals as taught by De Rossi et al into the pressure sensor of Tai et al for the purpose of providing high sensitivity to pressure, being inexpensive and easy to manufacture with high reliability (Column 1, line 67 – Column 2, line 2; De Rossi et al).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tai et al (6,782,755) in view of Tsuruoka (JP 63151837A).

With respect to claim 5, Tai et al teaches the claimed invention except for the surface of the thin film piezoelectric element being covered by a protective film.

Tsuruoka teaches a pressure transducer having the thin film piezoelectric element (i.e. membrane) being covered by a protective film (7) (Constitution). It would have been obvious to one having ordinary skill at the time the invention was made to provide a protective film as taught by Tsuruoka into the pressure sensor of Tai et al for the purpose of protecting the piezoelectric element from hazardous contaminants.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tai et al (6,782,755) in view of Royer (4,531,267).

With respect to claim 4, Tai et al teaches the claimed invention except for the oxide being selected from a group comprising ZnO having a C-axis orientation, wurtzite compound of LiNbO₃ type, a single crystal of langasite (La₃Ga₅SiO₁₄), a quartz, PZT (lead zirconate titanate) and a perovskite type oxide. Royer teaches pressure sensor having the layer (34) being an oxide selected from ZnO (Column 2, lines 46-49). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a layer being made from ZnO as taught by Royer into the pressure sensor of Tai et al for the purpose of increasing the pressure sensitivity and optimizing the maximum piezoelectric response (Column 3, line 44 – Column 4, line 18).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermaine Jenkins whose telephone number is 571-272-2179. The examiner can normally be reached on Monday-Friday 9am-530pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A.U. 2855


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